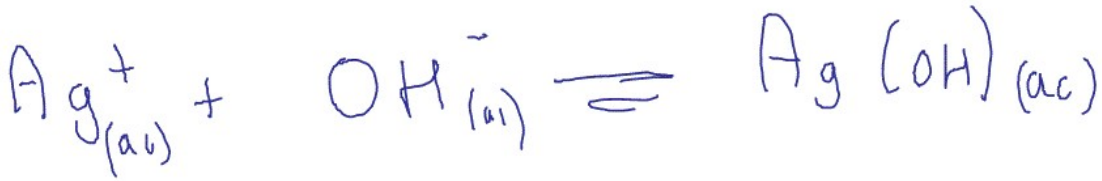
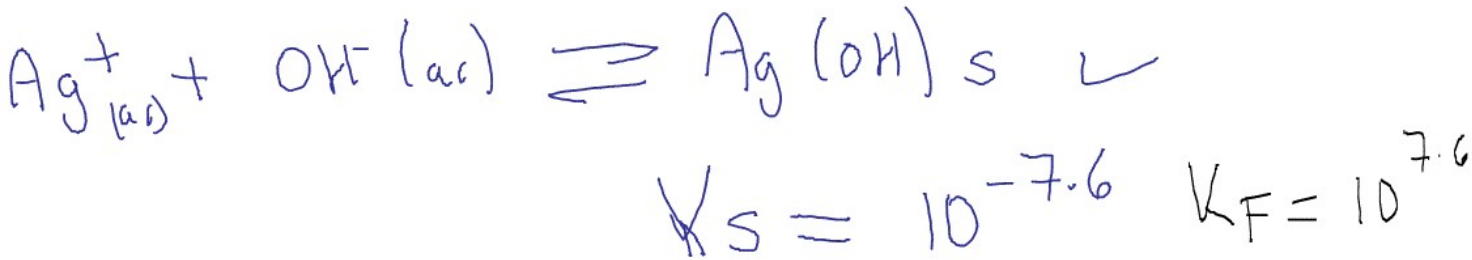
Sesión 4 26 de Junio 2025

Título de la nota 26/06/2025





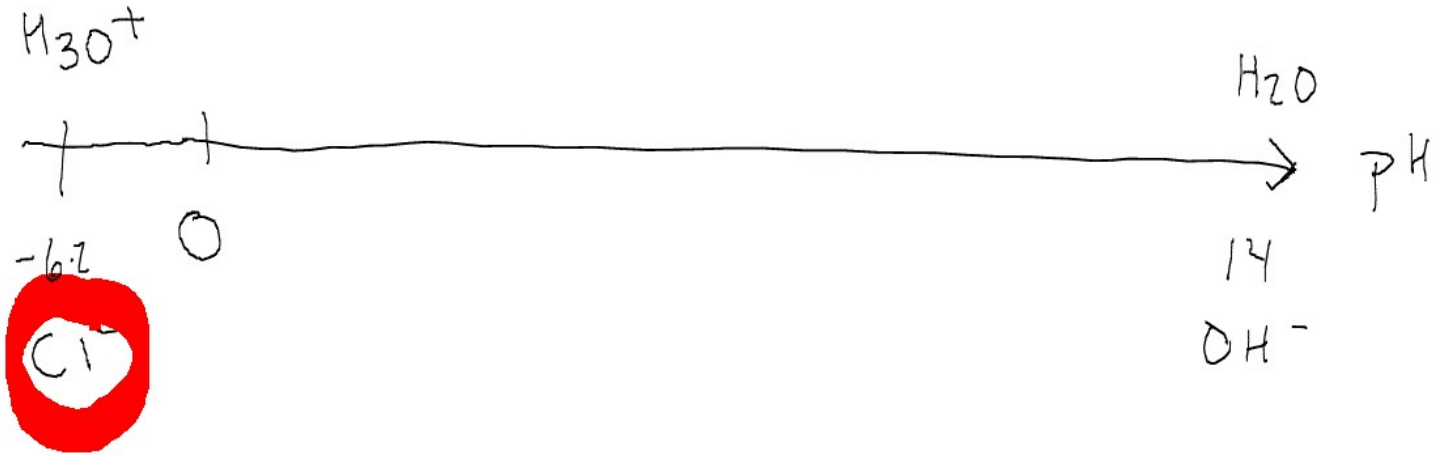
$$\alpha_{Ag(OH)} = 1 + \beta_1 [OH^-] + \beta_2 [OH^-]^2 + \beta_3 [OH^-]^3$$

$$= 1 + 10^{2.3} [OH^-] + 10^{3.6} [OH^-]^2 + 10^{4.8} [OH^-]^3$$

$$\alpha_{Ag(OH)} = \frac{[Ag^+]_T}{[Ag^+]_L}$$

$$[Ag^+]_L = \frac{[Ag^+]_T}{\alpha_{Ag(OH^-)}}$$

$$K_s' = K_s \alpha_{Ag(OH)} \alpha_{Cl^-(CH_3O^+)} \quad 1$$



p.e.

$K_s = [Ag^+][Cl^-]$

$[Ag^+] = [Cl^-]$

$K_s = (s)(s)$

$[Ag^+]^2 = K_s$

$[Cl^-]^2 = K_s$

$[Ag^+] = \sqrt{K_s}$ = solubilidad

$[Cl^-] = \sqrt{K_s}$ =

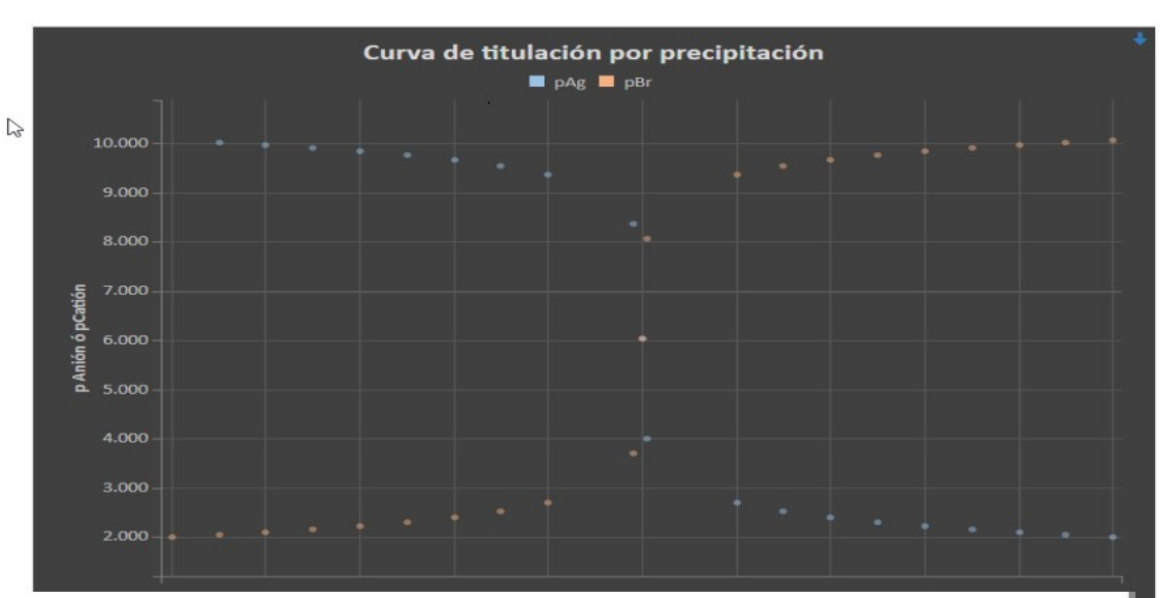
$[Ag^+] = \sqrt{10^{-9.5}}$

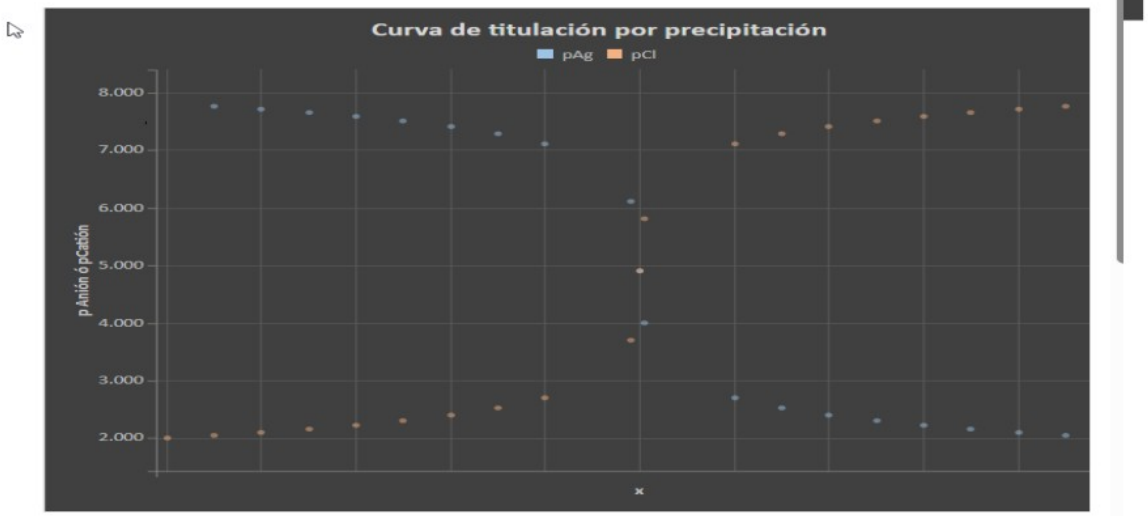
$= 10^{-9.5/2} = 10^{-4.75}$

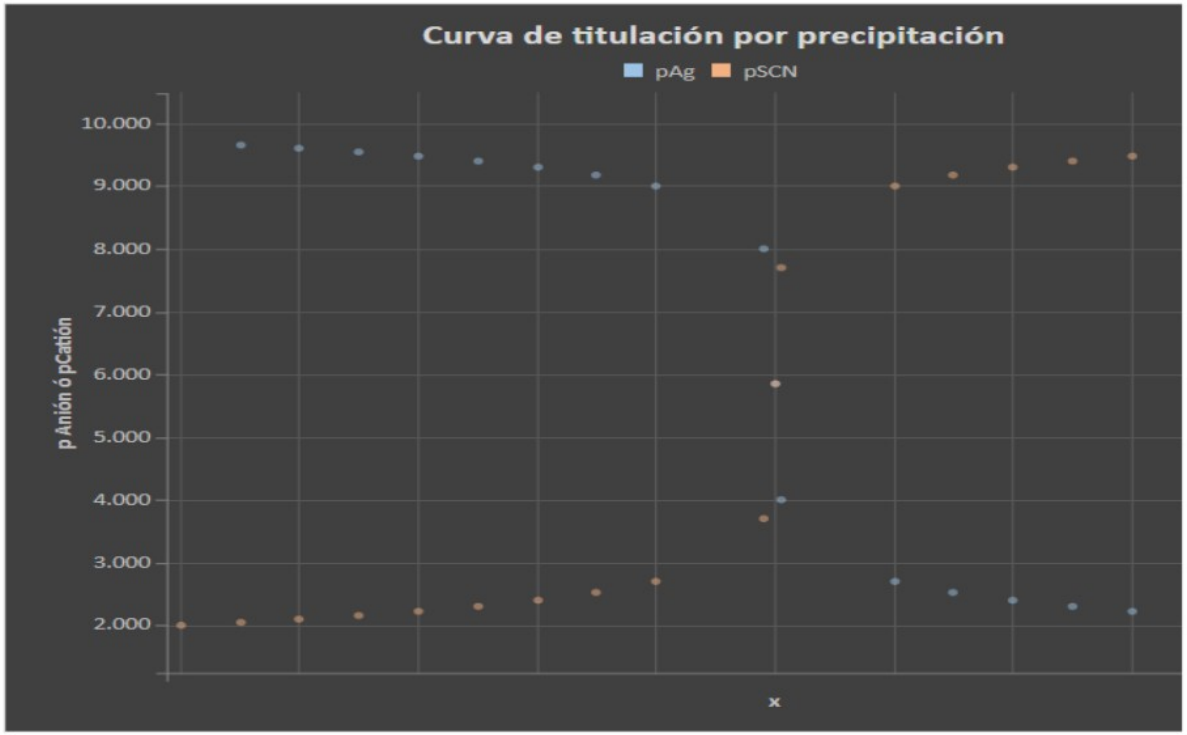
$$pAg^+ = -\log [Ag^+]$$

$$= -\log 10^{-4.75}$$

$$= 4.75$$

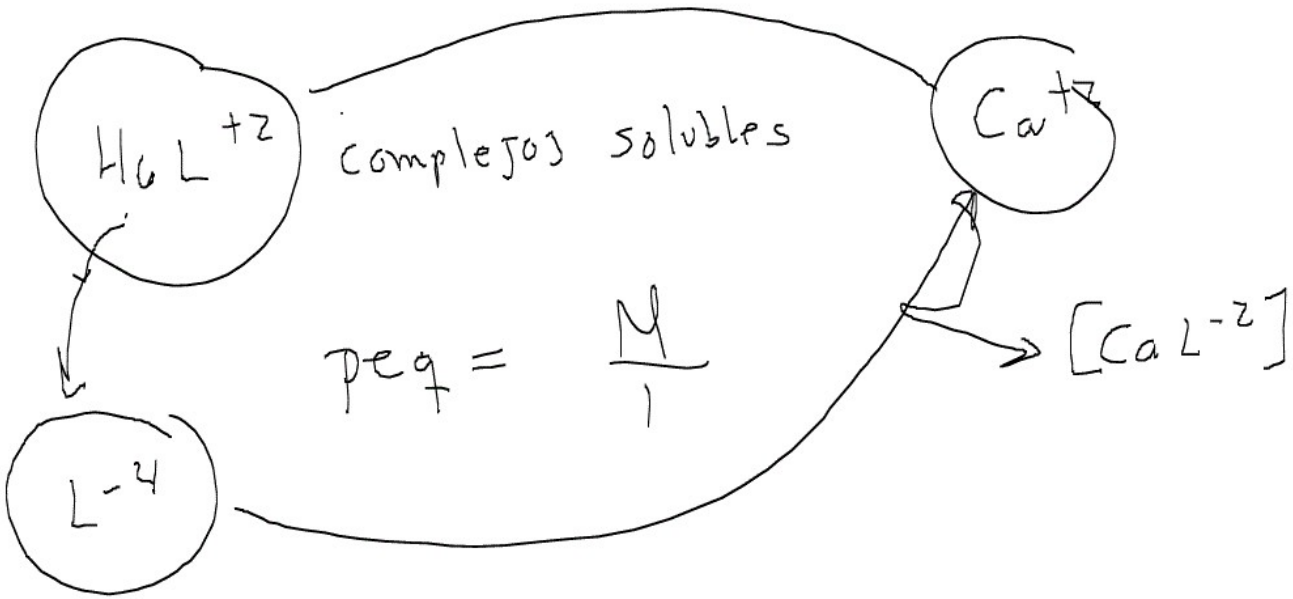

Curva de titulación por precipitación
pAg
pBr
p Anión ó pCatión
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000


Curva de titulación por precipitación
pAg
pCl
p Anión ó pCatión
8.000
7.000
6.000
5.000
4.000
3.000
2.000
x

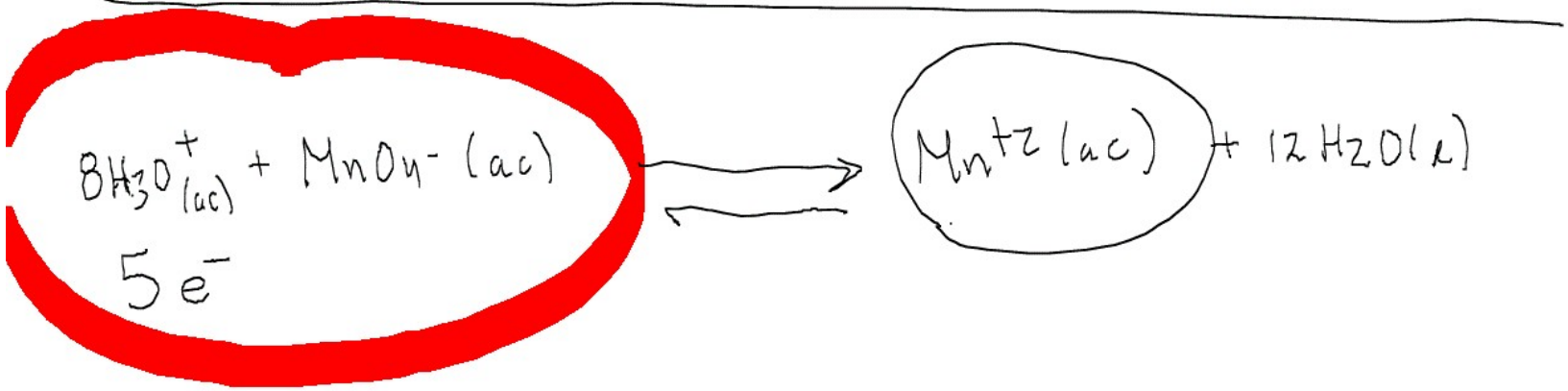

Curva de titulación por precipitación
pAg
pSCN
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
p Anión ó pCatión
x

AEDTA

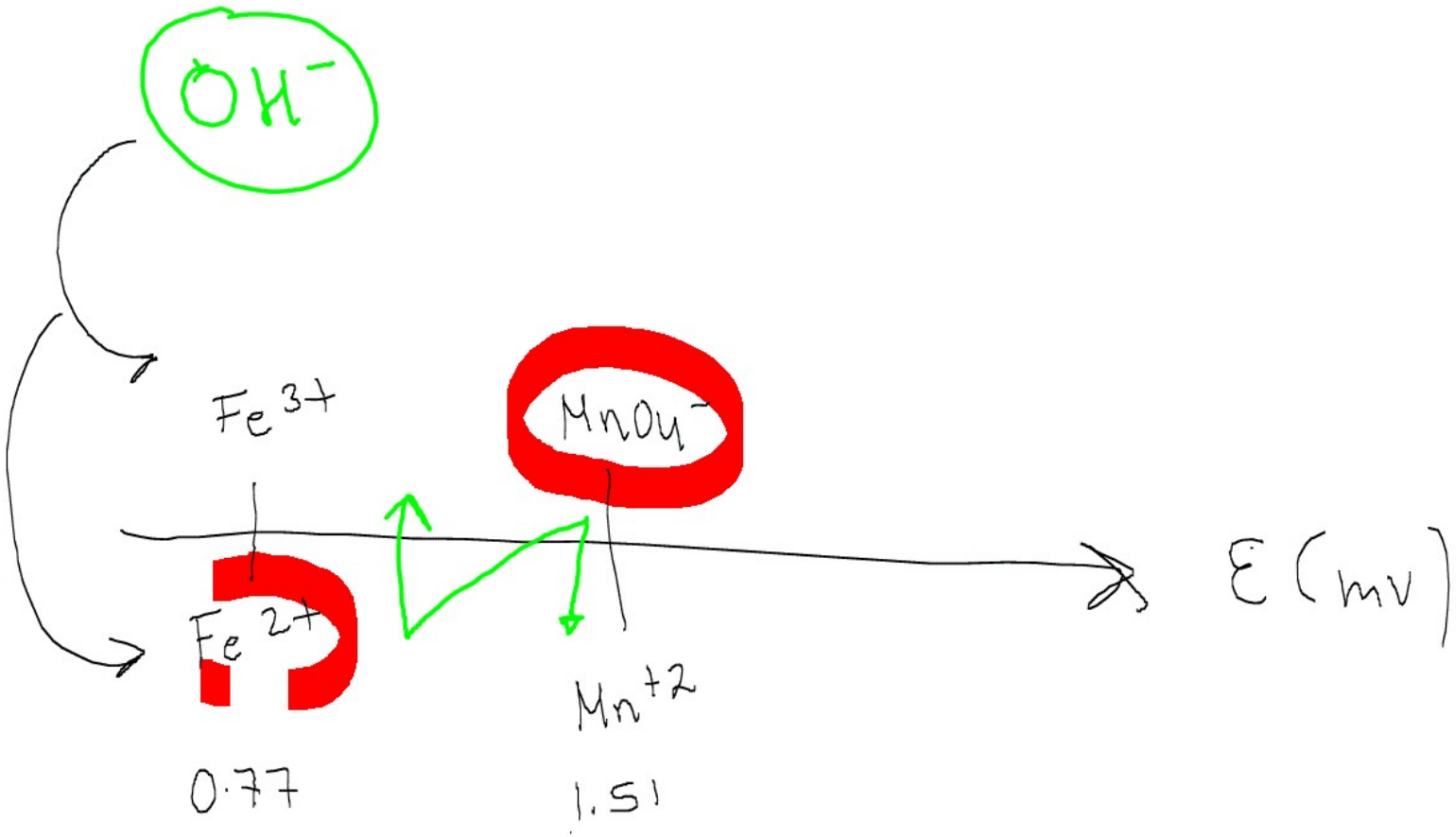
$\underline{H_6L^{+2}}$ $\quad peq = \frac{M}{6}$



$(MnO_4)^-$ $pe = \frac{M}{1}$



$pe\ MnO_4^- = \frac{M}{\#e} = \frac{M}{5}$


OH^-
Fe^{3+}
MnO_4^-
Fe^{2+}
Mn^{+2}
0.77
1.51
E (mV)

$$E = E^{\circ} + \frac{0.06}{n} \log \frac{[ox]}{[red]}$$

$$\Delta G = \Delta G^{\circ} + RT \ln Keq = 0$$

$$\Delta G^{\circ} = -RT \ln Keq \qquad \Delta G = -$$

Favorable

$$\Delta G = nFE$$

$$nFE = nFE^{\circ} + RT \ln Keq$$

$$\frac{n\mathcal{F}\varepsilon}{n\mathcal{F}} = \frac{nF\varepsilon^{\circ}}{nF} + \frac{RT}{nF}\ln K_{eq}$$

$R = 8.314\ J/mol\,K$

$F = 96500.\ \frac{Coul}{Mol}$

$T = 298.15\,K$

$$\varepsilon = \varepsilon^{\circ} + \frac{RT}{nF}\ln K_{eq}$$

$$\varepsilon = \varepsilon^{\circ} + \frac{0.06}{n}\log\frac{[ox]}{[red]}[H_3O^+]$$

K_{eq} $\quad ox \rightleftharpoons red.$

$$\therefore K_{eq} = \frac{[red]}{[ox]}$$

$$\mathcal{E} = Ag^+/Ag^\circ = 0.79\ V$$

$$\mathcal{E} = \mathcal{E}^\circ + \frac{0.06}{1} \log [Ag^+]$$

$$e^- + Ag^+ \rightleftharpoons Ag^\circ$$

$$2\,S_2O_3^{-2} \rightleftharpoons S_4O_6^{-2} + 2e^-$$

$4-$ $\qquad$ $2-$

$$pe\ S_2O_3^{-2} = \frac{2\,M_{S_2O_3}}{\#e} = \frac{2\,M_{S_2O_3^{-2}}}{2}$$

$$pe = M_{S_2O_3^{-2}}$$

$$Na(s) + H_2O(l) \rightleftharpoons Na^+(ac) + OH^-(ac) + \frac{1}{2} H_2(g)$$

$$Na^0(s) \rightleftharpoons Na^+(ac) + 1e^-$$

$$2H_2O \rightleftharpoons H_3O^+(ac) + OH^-(ac)$$

$$1e^- + H_3O^+(ac) \rightleftharpoons \frac{1}{2} H_2(g) + H_2O(l)$$